

# Tipping the energy balance: Energy investment trends in developing countries

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## Executive Summary

Christian Aid commissioned a report from the Overseas Development Institute in 2015 in order to identify investment drivers in the energy sector in developing countries across all regions. The desk-based study specifically looked at the trends in six countries, each with high levels of energy poverty and a range of natural resources. The countries chosen were Bolivia, Nicaragua, Kenya, Malawi, Bangladesh and Cambodia (two each in Latin America, Africa and Asia).

This report also includes extracts from the countries' Nationally Determined Contributions (NDC) proposed at the UN climate summit in Paris in December 2015 (excluding Nicaragua which did not submit an NDC). These sometimes contrast markedly with the current state of affairs on energy investment in the country concerned, emphasising the need for urgent and powerful campaigning worldwide if we are to transform to a global zero carbon economy by the second half of the century, as was called for in Paris.

One of the main findings from the research is that it will take a huge amount of political will to bring about a radical change in energy investment strategies across the globe, particularly from wealthier countries who invest in developing countries. Developing countries that have fossil fuel resources tend to exploit them as foreign investors show more interest in fossil fuels than renewable energy, and because fossil fuels are perceived to offer cheaper energy access for more people. However renewable and low-carbon energy generation technologies are becoming less costly and studies show that in the long term, switching investment to these types of ventures will make economic as well as climate sense.

In conclusion, although there is some political will to shift to renewable energy technologies, as demonstrated at the Paris summit, the shift is not happening fast enough and there is an urgent need to influence governments, development banks and private banks so they will shift investment away from fossil fuels and towards low-carbon energy, in order to achieve universal energy access as well as meet climate goals.

## Introduction

There are two global energy crises, which often seem to have contradictory solutions: the urgency of tackling climate change through a rapid global shift to low-carbon energy and the fact that more than two billion people continue to live in poverty because they have little or no access to modern energy.

When it unveiled the Sustainable Development Goals in September 2015, the United Nations Development Programme stated that on one hand: 'A global economy reliant on fossil fuels and the increase of greenhouse gas emissions is creating drastic changes to our climate system', while on the other: 'Still, one in five people lack access to electricity'.<sup>1</sup>

Sustainable Development Goal number 7 clearly outlines the need to **'ensure universal access to affordable electricity by 2030'. Investing in clean energy sources such as solar, wind and geothermal is therefore essential, as are 'expanding infrastructure and upgrading technology to provide clean energy sources in all developing countries'**.

Christian Aid and the organisations we work with around the world agree that these two crises can and must be solved together. To continue pursuing a development agenda by investing in fossil fuels would not only be short-sighted, but ultimately self-defeating, as climate change will have devastating impacts for many of the least-developed countries, and the poorest communities in those countries will continue to suffer its impacts most severely.

At the Paris climate summit in December 2015, rich and poor countries together made a commitment to reduce greenhouse gas emissions. 195 countries aligned to decouple their development and prosperity from fossil fuel use and showed their determination to embrace greener economies. The signatory countries also submitted Nationally Determined Contributions (NDCs) and these, together with the Paris agreement, have given the foundations the world had been waiting for to work towards addressing climate change globally. The positive outcome of the Paris summit provides a degree of policy that can reduce investment risks and financing costs for renewable and low-carbon projects, thus making energy security and sustainability aims more attainable.<sup>2</sup>

In their NDC proposals, developing countries outlined the steps they would take away from centralised fossil fuel-based energy policies and towards diverse decentralised renewable energy sources. This will help prevent further dangerous levels of global warming and will improve energy access in currently under-served areas, leading to poverty reduction.

Such a transition will, however, require a **huge amount of political will and a massive shift in energy investment strategies across the globe** and specifically from wealthy countries who seek to invest in the developing world. Although the global energy system is currently undergoing significant and rapid change, and the renewable energy sector is gaining in importance, investment in the exploitation of fossil fuels remains high. Christian Aid is campaigning

to promote a shift in investment from fossil fuels to low-carbon development while increasing energy access. Over the next three years, the Big Shift campaign aims to build an international climate campaign, supported by clear national and regional evidence from Africa, Asia and Latin America and the Caribbean, to ensure that the tens of trillions of dollars available for energy infrastructure projects are directed towards low-carbon renewable energy. This will allow the world's poorest countries to pursue development agendas which will not have dangerous implications for the climate.

This document summarises a study to provide greater understanding of the nature and scope of energy financing in six key developing countries where Christian Aid works: **Bangladesh** and **Cambodia** for the Asia Middle East region, **Bolivia** and **Nicaragua** for Latin America and **Kenya** and **Malawi** for Africa. It examines the countries' strategies for energy access and investments as part of their NDC proposals. It also summarises some feedback from Christian Aid's national partners on the research findings. And it discusses international actors' influence on national decision making about energy investment in the selected countries.

# Energy investment trends

## 1. Global trends

Total annual investment in the energy sector globally was about \$1.6 trillion in 2013, and is expected to rise to \$2 trillion by 2035.<sup>3</sup> Roughly 40% of this investment was in the power sector and 60% in fossil fuel extraction. And about 60% was in developing countries.

According to the International Energy Agency<sup>4</sup>, about 13% of global investment in the energy sector between 2000 and 2013 was in renewables, with an average investment of \$163 billion a year.<sup>5</sup> Investment in new renewables (small hydro, solar, wind and geothermal) had reached \$250 billion by 2013 and \$270 billion in 2014, with developing countries accounting for almost half of this. Onshore wind and solar PV comprise nearly two-thirds of new investment.

An average spend of \$230 billion is forecast globally to 2020 because of slowing capacity growth and decreasing investment costs for the most dynamic technologies.

Although investment in the energy sector is driven by profitability, it is also driven by government policy, regulations and tax incentives.

Developing country governments will continue to exploit fossil fuel reserves, which attract private foreign direct investment (FDI),<sup>6</sup> because of the revenues they offer, especially when there is an international market for the fuel. FDI in developing countries is often subsidised by donor governments and ten times more official development assistance (ODA) was disbursed for coal, oil and gas exploitation than for other energy sector projects between 2009 and 2013.

There are plans to expand coal-fired electricity generation in many developing countries worldwide. The drivers of this coal renaissance lie in the relatively low investment costs and the imperative of quickly reducing electricity shortages and meeting rapidly-growing demand.

The cost of renewable electricity is rapidly reducing. Electricity generation from renewable sources is now competitive with fossil fuels in some locations under existing market conditions. This potentially makes it more attractive to private investors. The IEA estimates that \$1 trillion of the \$16 trillion investment required in the power sector globally by 2035 will be provided through competitive markets.

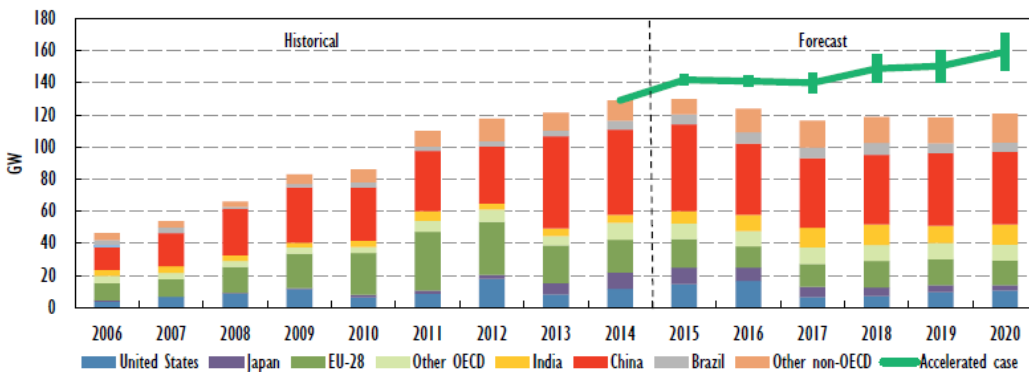
Decisions to commit capital to the energy sector are increasingly shaped by government policy measures and incentives, rather than by signals coming from competitive markets. In the oil sector, reliance on countries with more restrictive terms of access to their resources is set to grow, as output from North America plateaus and then falls back from the mid-2020s onwards. In the electricity sector, administrative signals or regulated rates of return have become, by far, the most important drivers for investment. Against this backdrop, mobilising private investors and capital will require a concerted effort to reduce political and regulatory uncertainties.

Reducing costs do not automatically imply that solar PV and onshore wind are competitive or cost-effective compared with alternatives. Competitiveness also depends on the value of the generation and the system costs associated with integrating higher shares of variable renewables. Their improving economics suggest that renewables are an increasingly valuable option in a well-diversified portfolio of energy investments from both the investor and system perspective.<sup>7</sup>

**With enhanced policy and market frameworks, renewable growth could accelerate.**

The International Energy Agency’s *Renewable Energy Medium-Term Market Report 2015* says: ‘Driven by a stronger embrace of the energy security, local pollution and climate benefits, cumulative renewable power growth over 2014-20 could be 25% higher than in the main case forecast, with a rising annual market. Under this accelerated case projection, annual investment could reach over \$315 billion by 2020. Achieving the accelerated case would require policy makers to send clearer signals to phase out the oldest and most polluting power plants while developing countries, in particular, would need to address market access and investment risks that keep financing costs elevated.’<sup>8</sup>

Figure 1 Renewable power net additions to capacity under main and accelerated cases



GW - gigawatts

Figure 1 - Source: © OECD/IEA 2014 Renewable Energy Medium-Term Market Report, IEA Publishing. Licence: www.iea.org/t&c

Many developing countries will continue to depend on FDI and ODA for investment in their energy sectors – and therefore may change their policies in order to attract it. FDI tends to be attracted to countries where the investment climate has been liberalised and where there are fossil fuel resources to exploit. Investment by China, the largest source of investment in the power sector in sub-Saharan Africa and a significant investor in Cambodia and Bangladesh, has started to be very influential over government energy policy. The degree of influence will be determined by the recipient government’s negotiating power, which depends on the country’s economic conditions and institutional capacity, among other factors.



## 2. Strategies of selected countries

### 2.1 ASIA

#### Bangladesh

In 2012, more than 70% of the commercial energy supply in Bangladesh was from non-renewable sources,<sup>9</sup> mostly provided by substantial but dwindling natural gas reserves (55.3%). Most of the electricity generated is gas- or oil-fired. There are severe electricity shortages because demand is outstripping investment in the infrastructure. In 2012, 40% of the population did not have access to electricity. Meeting the fast-growing demand for electricity is the government's priority. Bangladesh has been successful in promoting solar home systems but the focus of investment plans is on developing coal-fired generation. Under current plans gas will continue to be the main fuel, but its share will decrease and the share of coal as a primary fuel will increase from around 2% to 24% by 2036.

As outlined in Bangladesh's NDC, existing mitigation actions include the Solar Homes Programme, which is providing off-grid electricity access to rural areas. In its 2008 Renewable Energy Policy the country set a clear target to deliver 5% of its total electricity from renewable sources by 2015 and 10% by 2020, which has stimulated substantial development particularly of solar and wind power. It has also set aggressive targets to scale up the potential of solar irrigation pumps, and solar home systems to begin to serve the off-grid population. The costs of rural electrification measures are estimated to be \$3 billion for the period 2015-2030. The estimated investment required for developing grid-scale solar energy is \$1.3 billion, for scaling up wind energy \$0.6 billion, and for solar mini grids \$0.25 billion, solar nano grids \$0.27 billion and pico solar \$0.1 billion.<sup>10</sup> The country's GDP forecast for 2020 is \$288 billion.<sup>11</sup>

#### Cambodia

In 2012, 66% of the Cambodian population did not have access to electricity. The commercial energy sector is relatively under-developed, but expected to grow rapidly. Traditional biomass accounted for more than 70% of the energy supply in 2012, and more than half of the electricity consumed was imported. The current plan for expansion of electricity generation capacity is through large-scale hydropower and coal-fired plants. Hydropower potential is estimated to be 8,000 megawatts (MW), five times the current installed capacity. Exploitation of fossil fuel reserves is also likely to take off. Foreign investment, especially from China, is expected to play a major role.

By contrast, Cambodia's priority actions, as outlined in its NDC and its national Climate Change Action Plan for Manufacturing Industry and Energy Sectors (2014-2018), are to connect renewable energy generation (solar energy, hydropower, biomass and biogas) as well as decentralised renewable generation, such as solar home systems, hydro (pico, mini and micro), to the national grid. In addition, the government aims to promote the use of renewable energy for manufacturing industries and irrigation and promote the use of solar lamps.<sup>12</sup>

Christian Aid's partners in Bangladesh, Centre for Participatory Research and Development and Gana Unnayan Kendra agreed that electricity access is where the focus should be, not energy generation.

The Bangladesh Centre for Advanced Studies suggested that institutional capacity building, awareness raising and a holistic approach are essential in order to increase low-carbon development, especially in rural areas.

Furthermore, there is currently no focus on providing electricity in areas subject to annual flooding such as along rivers, deltas and the coast, where 4 million people live. Renewable energy access for these populations is an important issue and must be discussed.

Any future support for renewable energy will be channelled through bilateral and multilateral mechanisms, including market-based mechanisms. Cambodia is, for example, making progress in readiness for **direct access to the Green Climate Fund**, which may become the principal vehicle for climate finance. The Green Climate Fund is a UN mechanism which assists developing countries in adaptation and mitigation practices to counter climate change. Dedicated climate change funding from international sources, either from bilateral or multilateral donors or through global climate funds, represents only 40% of total climate-related investment. The strategy will also focus on traditional development funds.

## 2.2 LATIN AMERICA

### Bolivia

Oil and gas are the main source of energy in Bolivia. Oil accounts for 41.4% of Bolivia's total primary energy supply and gas for 36%. Bolivia is nearly self-sufficient in energy and only imports some high-end oil products. At the same time, it is promoting investment in renewable energy, which now accounts for about 17% of electricity generation. Since nationalising the sector in 2010, however, private investment has come to a standstill and development of the energy sector has depended on public finance, including international development and climate finance.

Bolivia has increased access to electricity to 82% of the population and plans to achieve universal electricity coverage by 2025. As part of its NDC, it is promoting the following measures:

- change and diversification of the energy matrix, with renewable energy growth, through the construction of hydropower (small and medium hydropower plants, large hydro and multipurpose); boosting alternative energy (wind, biomass, geothermal and solar); and use of other sources of energy (steam combined cycle which uses gas).
- promotion of universal access to clean energy, with emphasis on reaching the poorest communities.
- construction of large networks of power lines for transmission and distribution.<sup>13</sup>

### Nicaragua

The World Bank has described Nicaragua as a 'renewable energy paradise'. It has one of the highest clean energy penetration rates in the region, with 35% of its generation capacity coming from renewable sources. According to the Instituto Nicaraguense de Energia, they comprise "120 MW of hydropower, 154.4 MW geothermal, 186.2 MW wind power and 1.38 MW solar". However, imported oil currently supplies about 44% of its total energy needs and almost half of its electricity. The renewable energy potential has been estimated at 5,800 MW, and the government plans to increase renewables' share of installed generation capacity to 94% by 2017. Investment in the sector is supported by several donors, but private investment in renewable energy was significantly lower in 2013 than in the previous four years.

According to Christian Aid's partner the Centre for Labour and Agricultural Development in Bolivia (CEDLA), investment in fossil fuels has several negative impacts. Local people's human rights have been violated where exploitation of hydrocarbons has taken place.

Environmental impact is great near areas being exploited. Public investment in the large exploitation of natural resources leads to corruption and inefficiencies in the way public money is spent.

Nicaragua did not sign the Paris agreement and refused to deliver an NDC as it said the pledges let big polluters off the hook. Lead envoy Paul Oquist said: 'We're not going to submit because voluntary responsibility is a path to failure. We don't want to be an accomplice to taking the world to 3 to 4 degrees and the death and destruction that represents.'<sup>14</sup>

## 2.3 AFRICA

### Kenya

Traditional biomass provides more than 70% of Kenya's energy, but renewable sources currently provide more than 70% of the electricity supply. The country has recently begun to exploit its fossil fuel reserves and fossil fuels' share of the energy supply is expected to increase. Although the government intends to expand geothermal generation by 189% by 2030 (1,900 MW by 2016 to 5,500 MW by 2030), fossil fuel generation will also expand.<sup>15</sup> Plans include a 1 gigawatt (GW) coal-fired plant with Chinese investment which would increase the current total electricity capacity by more than 50%. (Generation capacity was 1,773 MW in 2014).<sup>16</sup>

Kenya aims to achieve a low-carbon, climate-resilient development pathway as outlined in its NDC. It seeks to abate its greenhouse gas emissions by 30% by 2030. This is subject to international support in the form of finance, investment, technology development and transfer, and capacity building. Kenya will continue to implement its National Climate Change Action Plan (2013-2017), and subsequent action plans, to achieve this target. Activities will include promotion of the expansion in geothermal, solar and wind energy production, other renewables and clean energy options.<sup>17</sup>

### Malawi

Investment in Malawi's energy sector has been limited. In 2015, the country's generation capacity was only 430 MW and 89% of the energy supply was from traditional biomass. Electricity is predominantly from hydropower. Government expenditure on the sector has been minimal, and ODA for energy averaged \$58 million a year between 2009 and 2013. This under-investment is the consequence of a lack of political commitment, corruption and a poor investment climate.

Access to grid electricity is 10%, one of the lowest rates in the world. Malawi's electricity generation deficit is not only a hindrance to new investments in manufacturing, industry, mining and tourism but also detrimental to the social and economic wellbeing of its people.

The Malawi Energy Policy (2003) envisaged a steady increase in hydroelectric power generation, reduction in biomass use, and steady growth in other renewable sources – especially solar, wind and micro hydropower plants. Most of the targets were not achieved however. Recent projections show that Malawi has to rapidly increase its generation capacity to between 2.5 and 3.5 times<sup>18</sup> by 2020 in order to meet demand. With external support, the

Government of Malawi will be able to make significant investments in energy generation from cleaner sources.

Investment in the sector will depend on international finance from **bilateral donors and multilateral development banks**.

Most of the energy sector interventions that have been put forward as climate change mitigation activities have adaptation benefits too. Energy production is vulnerable because power installations can be affected by floods and droughts, such as damage to machinery, loss of biomass productivity and there is a lack of availability of appropriate alternative technologies. **Solar PV** is an alternative for lighting when other sources of electricity are shut down, but the **technology is currently unaffordable without international support**.

**As stated in Malawi's National Climate Change Investment Plan issued in 2014, investments that would enhance the generation, transmission, distribution and utilization of alternative and renewable energy sources are key to the development of Malawi.**

## Conclusions

This report provides an overview of trends in global fossil fuel and renewable energy investment, identifies the factors driving investment in both fossil fuels and renewables, and assesses the role and influence of international funds. This section presents some conclusions on the drivers of energy investment and international influence on national decision making for energy development.

### 1. Drivers of investment

The reality of the trend in energy investment in developing countries shows a clear split. Despite their willingness to change their focus and reduce greenhouse gas emissions, as stated in their NDCs, developing countries which have fossil fuel resources are, more than ever, investing in their extraction and building coal-fired power plants. This is happening mainly because of the export revenue potential and because foreign investors are more easily attracted to fossil fuel schemes than renewable energy ones.

Convincing governments to prioritise investment in renewable energy is difficult in the face of the kind of returns foreign investors are looking for. However, development banks, the World Bank and mechanisms such as the Green Climate Fund are helping to show the way towards a different, less short-sighted approach – though some of these institutions are also funding fossil fuel-related projects.

The downward trend in costs associated with renewable energy is a further incentive, but more efficient, less costly technology is needed to make investment in renewables sufficiently attractive to foreign investors. Wealthy countries should be lobbied further to invest in renewable energy and low-carbon technologies in the developing world. Public opinion in developing nations should also be respected: large-scale energy projects using fossil fuels and hydropower are perceived very negatively by local populations and human rights groups.

### Fossil fuels

Three of the six selected countries – Bangladesh, Bolivia and Kenya – produce fossil fuels, mainly natural gas. All import fossil fuels of some kind. In Bangladesh and Bolivia, where extraction is well-established, fossil fuels are a major part of the domestic energy system. For Bolivia and Kenya, they offer export revenue potential.

Exploration for fossil fuels continues and new reserves are constantly being identified, particularly in sub-Saharan Africa. Amongst the six countries, coal is currently produced only in Bangladesh and Malawi. Coal mining in Kenya is expected to begin in 2015. Kenya began extraction from its gas reserves in 2012. Cambodia is only beginning to exploit its fossil fuel reserves. Large fossil fuel endowments attract international investors. Figure 2, for example, shows how oil-exporting countries in Africa have attracted significantly more FDI than those merely importing it in the period 2001-2011, though with a dip in investment following the global economic crash of 2008.

When national budgets depend on these revenues, and the global market is still demanding fossil fuels, there is little reason to reduce fossil fuel exploitation. Technical assistance and financial support for economic diversification could provide future opportunities to change.

**Figure 2: Average FDI inflows to oil exporting and oil importing countries in Africa (\$ million)**



Source: African Development Report 2012 team, based on UNCTAD data

According to the Centre for Participatory Research and Development, one of Christian Aid's partners in Bangladesh, there is scope to investigate how to influence donor countries such as Germany, Japan, China and the USA, to stimulate more investment in low-carbon development.

While fossil fuel resource endowments attract investment, they can also lock countries into a carbon-based economy. Fossil fuels constitute a major source of government revenue for many developing countries, which may have little means to diversify sources of income. This is particularly true for Bangladesh and Bolivia, and could be an obstacle for the development of a domestic clean energy sector.

The national regulatory environment, a lack of taxation, and direct and indirect fossil fuel subsidies in many African, Latin American and Asian countries further encourage fossil fuel investment. These policy and regulatory barriers can reduce the competitiveness of renewables, and slow the deployment of green energy technology.

The drivers for the coal renaissance in some of the selected countries can be found in the relatively low investment costs for extraction, when compared to the equivalent unit of output for oil or gas. The trend towards coal-fired power generation, using domestic or imported coal, appears to be driven by the need to meet the rapidly-growing demand for electricity.

Cost appraisals do not generally take into account the social and environmental costs associated with coal production and use. The rapidly-changing relative costs of renewable energy have also yet to be reflected in project appraisals.

### Renewable energy

Growth in investment in renewable energy has been driven by renewable energy support policies and its increasing cost-competitiveness. An estimated 145 countries had renewable energy support policies in place in early 2015.<sup>19</sup> Those countries with more stable and ambitious policy frameworks tended to attract higher levels of clean energy investment.<sup>20</sup>

Market mechanisms are among the most popular tools to spur renewable energy development.

Feed-in-tariff policies have been enacted in 108 national and sub-national jurisdictions.<sup>21</sup> Reverse auctions, where developers are required to bid to supply power at the lowest possible cost, are an increasingly popular market-based instrument. No fewer than 228 policies are currently in effect in those nations which have adopted some form of energy market mechanism.

The removal of subsidies for fossil fuel production and consumption has been frequently advocated to incentivise investment in renewable energy.<sup>22</sup> While subsidies in developing countries still largely favour fossil fuels, as in Bangladesh, Bolivia and Cambodia, redesign, including reallocation of the resources by donor countries to development priorities, could also make them a tool to promote renewables.

Renewables also face challenges in some countries where policy changes have created new uncertainties for investors. The recent imposition of taxes on renewable generation and the removal of subsidies for renewable energy give an idea of the new obstacles in developed countries, including the UK<sup>23</sup> Dependable policy signals are essential to ensure that investments offer a sufficiently attractive risk-adjusted return.<sup>24</sup>

The cost of renewable energy technologies is falling rapidly, especially for solar PV and onshore wind, which are now competitive with fossil fuels in some locations under existing market regulations.<sup>25</sup> The competitiveness of renewables is illustrated by the 200 MW photovoltaic plant currently being built in Dubai by the Dubai Electricity and Water Authority. This plant will sell electricity at the very low price of \$0.0585 per kilowatt hour, and ACWA Power, a developer owned by a consortium of Saudi conglomerates and the International Finance Corporation (a member of the World Bank Group), has confirmed that this low price will most likely be achievable in future projects.<sup>26</sup>

This does not mean, however, that renewables present the most financially viable option in every case. The evidence seems to be in favour of prices for solar and wind power continuing to fall – but even for these, context-sensitive assessments might reveal a different picture.

The financial side remains a further constraint. The available financial instruments must be married with the specific requirements of many renewable energy projects, such as their dispersed, diverse and small-scale nature.<sup>27</sup> Although new renewable energy investment reached \$270 billion globally in 2015,<sup>28</sup> more than \$950 billion was invested in fossil fuels in 2013.<sup>29</sup> The far greater availability of financing for fossil fuels is an incentive for developing countries to choose fossil fuels over renewables.

As renewables become increasingly competitive, the potential returns on investment in renewable energy are also increasing. Private corporations could therefore allow for more risk-taking. Global private funds have gained importance in recent years, and public-private partnerships have attracted significant attention.



## 2. The influence of international funding

Globally, investment in the energy sector peaked in 2011, and is now around \$1.6 trillion a year. A growing proportion of this investment is in low- and middle-income countries, where the demand for energy is increasing. However all six of our selected countries have a serious lack of funding for the national energy sector. This, along with a lack of institutional capabilities, means that their national energy plans might be considered unrealistic.

Investment in the energy sector is financed by domestic public and private sources, international public finance, including ODA, and private foreign investment. The extent and trend of domestically financed energy investment is difficult to determine. National accounts do not generally provide energy-specific investment data.

ODA saw an all-time high in 2013, with more than \$135.2 billion disbursed. This included \$8.7 billion for energy, including \$1.3 billion for gas and \$0.5 billion for coal. The proportion of total ODA to the energy sector increased to 6.2%, from 4.4% in 2009. OECD Aid statistics show that **13.8% of ODA investment in energy was directed towards power generation from renewable sources.**

In 2013, about 38% of ODA was channelled through multilateral and international organisations, principally the World Bank and the EU. The largest bilateral donors were Germany, Japan, United Arab Emirates and the US. The UAE contribution is biased by a large, \$940 million grant to Egypt for the purchase of oil. The UK's bilateral ODA disbursement for energy in 2013 totalled \$253.8 million, about 3% of the global total.

The criteria by which funds are allocated vary depending on the donor. Analysing the determinants of investment in electrification<sup>30</sup> found that ODA for electrification tends to go to countries with higher rates of economic growth and higher quality governance.

To attract the financial support on which they rely, countries can be tempted to adjust national policy and legislation, for example to comply with donor standards for development aid. Such changes show the **potential for donors to influence internal policy making processes.** 17% of energy ODA is directly directed at policy development, ranging from power sector reform to support for Sustainable Energy for All<sup>31</sup> (SE4All) in Kenya.

FDI has grown at an unprecedented rate in recent years<sup>32</sup>. There is a clear trend towards developing country governments liberalising their investment climate in order to attract funds.<sup>33</sup> This presents opportunities for financial support to improve development outcomes and create sustainable national energy sectors. It also risks the loss of policy space by substituting national expenditure with outside funds. This increases the level of dependency on outside finance and opens the door for foreign governments and corporations to dictate terms.

**The evidence suggests that the increase in global FDI can trigger policy changes in developing countries. International private funds are taking an increasingly central role as**

The Bangladesh Centre for Advanced Studies (BCAS), one of Christian Aid's partners in Bangladesh, highlighted the fact that international funders trigger investment into low-carbon energy, especially for household solar power, and that the private sector is much more interested in this because of funding availability.

Development partners and countries should support investment into this sector.

Some energy projects that attract positive investment are related to energy efficiency rather than low-carbon production, according to the Centre for Participatory Research and Development.



### developing countries look to them to back ambitious projects in their domestic energy sectors.

The fast-growing Indian and Chinese economies rely on imported fossil fuels. Accordingly, their national oil and gas companies are increasingly securing investment opportunities abroad and these two countries account for a large share of FDI in fossil fuel extraction in Africa. China is the single largest source of external finance for power sector investments in Africa.<sup>34</sup> Between 2009 and 2015, China's investment in other countries' energy sectors totalled \$378.8 billion. Its investments in the six selected countries are shown in the table below.

#### Energy investment by China 2009-2015 (\$ million)

Country	Total	Gas	Coal	Hydro	Oil	Other
<b>Bangladesh</b>	1580	510	630			440
<b>Bolivia</b>	240			240		
<b>Cambodia</b>	4900		170	580	3970	180
<b>Kenya</b>	3140		1010	1750		380
<b>Malawi</b>	710		500	210		
<b>Nicaragua</b>	230				230	

Source: <https://www.aei.org/china-global-investment-tracker/>

Given the weak institutional frameworks in many of the recipient countries, a certain degree of influence on regulations in the sector can be assumed.

#### FDI is an attractive way for investors to influence political decision making and secure long-term interests in a country.

The degree of influence investors have depends on the recipient country's bargaining position,<sup>35</sup> which in turn depends on the country's economic situation, the independence of its institutions and a number of other factors. Dependence on donors and external investors can become problematic when bargaining positions are too unequal.

Centro Humboldt, Christian Aid's partner in Nicaragua said: 'International funding sources are thought to have a high level of influence as investments in energy are usually financed through loans from World Bank, Inter-American Development Bank and the IMF as well as private investment from large foreign companies.'

- 1 UNDP. 'Goal 7: Affordable and clean energy' <http://www.undp.org/content/undp/en/home/sdgoverview/post-2015-development-agenda/goal-7.html>
- 2 International Energy Agency (2015) World Energy Outlook Special Report
- 3 International Energy Agency (2014) World Energy Investment Outlook, Paris
- 4 The International Energy Agency is an autonomous organisation which works to ensure reliable, affordable and clean energy for its 29 member countries and beyond. The IEA has four main areas of focus: energy security, economic development, environmental awareness and engagement worldwide.
- 5 International Energy Agency (2014) World Energy Investment Outlook, Paris
- 6 FDI refers to investments made to acquire a lasting interest in enterprises operating outside the home country of the investor, giving the investor an effective voice in the management of the enterprise. The forms of investment which are classified as FDI are equity capital, the reinvestment of earnings and the provision of long-term and short-term intra-company loans (between parent and affiliate enterprises).
- 7 International Energy Agency (2015) World Energy Outlook Special Report
- 8 International Energy Agency (2015) Renewable Energy Medium-Term Market Report
- 9 Asian Development Bank (2013) Energy Outlook for Asia and the Pacific , Manila
- 10 Intended Nationally Determined Contributions (INDC) September, 2015 - Ministry of Environment and Forests of Bangladesh, [http://www4.unfccc.int/submissions/INDC/Published%20Documents/Bangladesh/1/INDC\\_2015\\_of\\_Bangladesh.pdf](http://www4.unfccc.int/submissions/INDC/Published%20Documents/Bangladesh/1/INDC_2015_of_Bangladesh.pdf)
- 11 Trading Economics <http://www.tradingeconomics.com/bangladesh/forecast>
- 12 Cambodia's Intended Nationally Determined Contribution – Kingdom of Cambodia, <http://www4.unfccc.int/submissions/INDC/Published%20Documents/Cambodia/1/Cambodia's%20INDC%20to%20the%20UNFCCC.pdf>
- 13 Intended Nationally Determined Contribution from the plurinational State of Bolivia, <http://www4.unfccc.int/submissions/INDC/Published%20Documents/Bolivia/1/INDC-Bolivia-english.pdf>
- 14 Alex Pashley, Nicaragua to defy UN in climate pledge refusal', Climate Home, November 2015 <http://www.climatechangenews.com/2015/11/30/nicaragua-to-defy-un-in-climate-pledge-refusal/>
- 15 Blue & Green Tomorrow, Renewable energy as a catalyst of economic development in Kenya, November 2015 <http://blueandgreentomorrow.com/features/renewable-energy-as-a-catalyst-of-economic-development-in-kenya/>
- 16 Off-grid solar case study and opportunities in Kenya, Ministry of Energy and Petroleum of Kenya, June 2014 <https://www.solarwirtschaft.de/fileadmin/me>
- 17 Kenya's Intended Nationally Determined Contribution, Ministry of Environment and natural Resources, 23 July 2015, [http://www4.unfccc.int/submissions/INDC/Published%20Documents/Kenya/1/Kenya\\_INDC\\_20150723.pdf](http://www4.unfccc.int/submissions/INDC/Published%20Documents/Kenya/1/Kenya_INDC_20150723.pdf)
- 18 Respectively 1,200MW and 1,500MW, Republic of Malawi Intended Nationally Determined Contribution, <http://www4.unfccc.int/submissions/INDC/Published%20Documents/Malawi/1/MALAWI%20INDC%20SUBMITTED%20TO%20UNFCCC%20REV%20pdf.pdf>
- 19 Renewable global status report 2015, REN21, [http://www.ren21.net/wp-content/uploads/2015/07/GSR2015\\_KeyFindings\\_lowres.pdf](http://www.ren21.net/wp-content/uploads/2015/07/GSR2015_KeyFindings_lowres.pdf)
- 20 Climatescope 2014 (2014) South Asia/Bangladesh, Bloomberg New Energy Finance, London
- 21 Renewable global status report 2015, REN21, [http://www.ren21.net/wp-content/uploads/2015/07/GSR2015\\_KeyFindings\\_lowres.pdf](http://www.ren21.net/wp-content/uploads/2015/07/GSR2015_KeyFindings_lowres.pdf)
- 22 Whitley, S. (2013) Time to change the game: fossil fuel subsidies and climate, Overseas Development Institute
- 23 United Nations Environmental Programme (2015) Global Trends in Renewable Energy Investment 2015, Frankfurt School of Finance and Management GmbH
- 24 Climatescope 2014 (2014) South Asia/Bangladesh, Bloomberg New Energy Finance, London
- 25 International Renewable Energy Agency, 2015, <https://irenanewsroom.org/2015/12/29/the-falling-costs-of-renewable-energy-no-more-excuses/>
- 26 United Nations Environmental Programme (2015) Global Trends in Renewable Energy Investment 2015, Frankfurt School of Finance and Management GmbH
- 27 Climatescope 2014 (2014) South Asia/Bangladesh, Bloomberg New Energy Finance, London
- 28 Global Trends in Renewable Energy Investment, United Nations Environment programme, Frankfurt School-UNEP Centre/BNEF, 2015 [http://fs-unep-centre.org/sites/default/files/attachments/ke\\_y\\_findings.pdf](http://fs-unep-centre.org/sites/default/files/attachments/ke_y_findings.pdf)
- 29 International Energy Agency (2014) World Energy Investment Outlook, Paris
- 30 What Explains the Allocation of Aid and Private Investment for Electrification?, Ana Pueyo, Pedro Orraca and Rachel Godfrey-Wood, Institute of Development Studies Evidence Report No. 123, March 2015
- 31 The Sustainable Energy for All initiative is a multi-stakeholder partnership between governments, the private sector, and civil society. Launched by the UN Secretary-General in 2011, it aims to ensure universal access to modern energy services, double the global rate of improvement in energy efficiency, double the share of renewable energy in the global energy mix.
- 32 Foreign direct investment, , World Bank Data, <http://data.worldbank.org/indicator/BX.KLT.DINV.CD.WD>
- 33 Te Velde, Dirk Willem (2006) Foreign Direct Investment and Development, An historical perspective, Background paper for World Economic and Social for 2006, Overseas Development Institute, London
- 34 Power, people and planet: Seizing Africa's energy and climate opportunities, Africa Progress Report, Africa Progress Panel, 2015 [http://app-cdn.acwupload.co.uk/wp-content/uploads/2015/06/APP\\_REPORT\\_2015\\_FINAL\\_low1.pdf](http://app-cdn.acwupload.co.uk/wp-content/uploads/2015/06/APP_REPORT_2015_FINAL_low1.pdf)
- 35 International Energy Agency (2014) World Energy Investment Outlook, Paris